

XI.—*The Bees of the Genus Andrena found in New Mexico.* By T. D. A. COCKERELL.

1. *Species with the abdomen partly or wholly rufous.*

a. Pubescence black.

Andrena prima, Casad, sp. n., ♀.

“Head, thorax, legs, and last abdominal segment black; segments 1 to 4 red; pubescence black; head as broad as thorax; clypeus, face, occiput, and cheeks sparsely hairy, clypeus and occiput punctate; face between antennæ striate longitudinally; antennæ black; mesothorax, scutellum, and postscutellum coarsely punctured, clothed with a few scattered black hairs; metathorax fringed, and pleura sparsely clothed, with black hairs; wings smoky from basal nervure to apex; tegulæ black, shiny; legs black, with black pubescence, that on anterior legs sparsely mixed with reddish-gold hairs; abdominal segments 1 to 4 reddish, bare, punctate and shiny, last segment black, fringed with black hairs; venter sparsely hairy. Length about 10 millim.” (*Jessie E. Casad.*)

Hab. Little Mountain, Mesilla Valley, N. M., April 1, 1895, on *Krynitzkia*, believed to be *K. Jamesii* (*Casad*, 151). I took one on flowers of plum on the College Farm, March 30, 1896; this has the two last abdominal segments black, leaving only three red, but it is clearly the same species. The enclosure of the metathorax is wrinkled. This differs entirely from any described North-American species. The Mexican *A. modesta*, Sm., may resemble it somewhat from the description, but it is evidently a different thing.

b. Pubescence grey or fulvous.

a. Wings clear or only faintly clouded.

Andrena sphecodina, Casad & Ckll., sp. n.

“Black and red, pubescence ashy; head about as broad as thorax; clypeus, face, occiput, and cheeks clothed with pale hairs, clypeus punctured; face between antennæ and ocelli striated longitudinally; hair on pleura long; wings dusky hyaline, nervures brown, third submarginal cell very long, narrowed more than half toward marginal; tegulæ piceous, shiny; legs clothed with pale hairs, trochanter furnished with a tuft of long silky white hair, femora and basal portion of tibiæ black, tibiæ and tarsi red; first and second abdominal

segments with a small black spot laterally near base; first segment with sparse long hairs at sides, bare towards centre, without apical hairy band; hairy bands, interrupted on segments 3 and 4, on second reduced to a patch on each side; apical segments clothed sparsely. Length about 7 millim." (*Jessie E. Casad.*)

♀. Length 9 millim. Head and thorax black, abdomen entirely bright rufous, except the mostly black pygidium; a black patch on each side of first segment at base and a small black spot on each side of second segment. Legs black, the hind tibiæ and tarsi light rufous. Clypeus with large close punctures, no median impunctate line. Mandibles scimitar-shaped. Antennæ wholly black. Mesothorax microscopically reticulate, with excessively large punctures, becoming sparse in middle. Hind portion of mesothorax and scutellum shining, the latter with large punctures. Enclosure of metathorax longitudinally plicate, bounded behind by a salient rim. Abdomen with small sparse punctures. Anal fimbria fulvous.

♂. Like the female, but the antennæ longer, the pubescence on clypeus paler and denser, the first segment of the abdomen black except its hind margin broadly, and the hind tibiæ black.

Hab. Common about Las Cruces, N. M. Taken on *Sisymbrium* (10 males, one female) and on flowers of plum (3 males, two females) on the College Farm, April 9 and 12, 1895. One female on *Salix*, May 3.

This pretty species has the coloration of a *Sphcodes*; it could be confounded only with *A. Marie*, Rob., and *A. Perezi*, Rob., = *erythrogastra*, Ashm., from both of which it is quite distinct by the coloration of the male &c.

A somewhat similar European species is *A. genevensis*, Schmied., but that has the end of the abdomen dark.

β. Wings strongly clouded apically.

i. Clypeus dark.

† First segment of abdomen very feebly and sparsely punctured.

Andrena Jessicæ, Ckll., sp. n.

♂. Length about 10 millim. Head and thorax black; abdomen rufous, with black markings, pubescence fulvous. Head slightly wider than thorax, face broad, orbits parallel; pubescence tolerably dense, concealing the surface, except on vertex; antennæ black, the flagellum only tinged very dark brown on one side; mandibles black; clypeus strongly and

closely punctured; vertex dull, minutely rugulose, becoming striatulate, sparsely punctured. Thorax quite densely pubescent, except dorsulum and base of metathorax; mesothorax and scutellum microscopically tessellate, with rather large moderately sparse punctures. Enclosure of metathorax minutely granular, with irregular, small, rather obscure wrinkles, not bounded by a distinct rim. Tegulæ amber-colour. Wings yellowish hyaline, external margin broadly smoky, darkest towards the apex. Nervures and stigma reddish fulvous, costal nervure black. Third submarginal cell narrowed one half to marginal. Second submarginal much broader below than above. Legs black; anterior tibiæ partly in front, middle and hind tibiæ and all the tarsi ferruginous. Abdomen rather broad, shining, thinly pubescent, the pubescence forming thin bands along the apical margins of the second and following segments; first segment black, except hind margin and a central shade; second segment with a black spot on each side; fourth segment with a suffused black shade, fifth brownish black, as also the sixth, but the colour of that almost hidden by the pubescence. Venter rufous, the last three segments obscurely stained blackish. Surface of abdomen above microscopically tessellate, with the punctures very small and sparse.

Hab. College Farm, Mesilla Valley, N. M., April 9, 1895, on plum (*Jessie E. Casad*, 163). This is evidently near to *A. discreta*, Sm., from Oajaca, Mexico, of which only the female is known; it may possibly be its male, but there are several similar species, and Smith does not mention the abdominal punctuation.

†† First segment of abdomen strongly punctured.

Andrena argemonis, Ckll., sp. n.

♂. Length about 16 millim. Head and thorax black, abdomen black and rufous, femora black, tibiæ and tarsi ferruginous, pubescence fulvous. Head longer in proportion to its breadth, with the face narrower than in *Jessica*. Pubescence short, but quite dense on cheeks, occiput, sides of face, and between the antennæ. Clypeus medially bare except for a few scattered hairs, shining, with very close large punctures. Mandibles and antennæ wholly black. Vertex smooth and shining, with large, rather sparse punctures, which suddenly become smaller and very dense on front. Mesothorax and scutellum smooth and shining (not tessellate as in *Jessica*), with large, tolerably close punctures. Enclosure of metathorax granular, irregularly wrinkled so as

to be subcancellate, with a short raised rim behind, but not at sides. Pubescence of thorax quite orange-red, rather short but dense on sides of mesothorax, hind border of scutellum, postscutellum, pleura, and sides of metathorax. Tegulae shining reddish fulvous. Wings yellowish smoky, with a subviolaceous lustre, external margin broadly darker; nervures dark brown, costal nervure black, stigma small and narrow, ferruginous; third submarginal cell not narrowing half to marginal. Abdomen moderately shining, strongly and closely punctured, basal third of first segment smooth and practically impunctate. Pubescence foxy red, very short, forming bands on the hind margins of the segments, that on the first thin, the others dense and conspicuous. Colour of abdomen dark ferruginous, with an almost purplish tint; first segment black except its hind margin, third to fifth segments suffused with black, sixth dark brownish. Venter dark reddish, the last three segments becoming blackish.

Hab. Santa Fé, N. M., by the Denver and Rio Grande depot; two inside closed flowers of *Argemone platyceras*, on a dull afternoon, Aug. 3, 1895 (*Ckl.* 4150, 4151).

ii. Clypeus not dark, at least in the ♂.

† Dorsum of thorax honey-yellow.

Andrena mellea, Cresson.

Andrena mellea, Cresson, Trans. Am. Ent. Soc. 1868, p. 384, ♀.

†† Thorax entirely black.

(a) Pubescence of pleura, face, and cheeks fulvous; second segment of abdomen without a black band.

Andrena prunorum, Ckll., sp. n.

♂. Length about 12 millim. Head and thorax black, clypeus yellow, abdomen ferruginous and black, legs ferruginous, blackish at base, wings clouded at apex. Head broader than long, subtriangular or broadly subcordiform, whereas in *Jessicæ* it is more quadrate; fulvous pubescence quite dense all over face, cheeks, &c., only lacking on vertex, which is closely punctured. Clypeus large, closely but rather feebly punctured, light yellow, with two black dots. Basal process of labrum pitch-black, shining, emarginate, while in *Jessicæ* it is truncate, a little depressed medially, hardly emarginate. Mandibles wholly black. Antennae black, with the scape, funicle, first joint of flagellum, and base of second joint more or less strongly ferruginous.

Ann. & Mag. N. Hist. Ser. 6. Vol. xviii.

6

Thorax quite densely clothed with fulvous pubescence, as in *Jessicæ*; mesothorax and scutellum with close large punctures, the surface between the punctures smooth though rather dull, not tessellate as in *Jessicæ*. Metathorax closely pitted or subcancellate all over, with no defined enclosed space. Tegulæ shining amber-colour. Wings smoky hyaline, yellowish towards base, costa broadly suffused with fuliginous, the region of apex darkest; nervures ferruginous, the outermost fuscous, costal nervure black, stigma ferruginous. Third submarginal cell narrowing about half to marginal, but variable. Legs ferruginous, with short fulvous pubescence; trochanters black; femora largely suffused with black basally and beneath, middle femora incrassate. Abdomen fairly stout, strongly and closely punctured, with short fulvous pubescence clothing the whole dorsum, not obscuring the ground-colour, not forming distinct bands. First segment black, with the apical margin ferruginous; second segment ferruginous, with a large oval black mark at each extreme side; remaining segments black, with the hind margins broadly ferruginous. Venter ferruginous, with two black spots on third and broad black bands on fourth to sixth segments. Sometimes there is much less black on venter and the third segment above shows less black.

♀. Closely similar. Clypeus dull honey-yellow, with large punctures, smooth medially. Second joint of flagellum wholly ferruginous. Pubescence of thorax short and sparse, lateral margins of metathorax with a conspicuous fringe of whitish hairs. Tubercles slightly stained with ferruginous. Femora with scarcely any black. Trochanters partly ferruginous. A tuft of dull white hairs at base of hind legs. Hind tibiæ incrassate. First segment of abdomen only black at extreme base and at sides; second segment with very small lateral spots; third segment only narrowly black at extreme base. Anal fimbria shining coppery. Punctuation of abdomen finer than in the male. Segments 2 to 5 with distinct hair-bands.

Hab. Three specimens at Las Cruces, N. M., viz. :— (1) middle of April, 1894, collected by Miss Agnes Williams, a female; (2) on flowers of plum, College Farm, April 9, 1895, male; (3) on flowers of plum, March 26, 1896, male.

This shows much superficial resemblance to *Nomia nevadensis*, which is common at Las Cruces, but flies in August and September. *A. prunorum* is doubtless closely related to the Texan *A. malliventris*, Cr., but that has black legs and the antennæ are differently coloured, as also is the abdomen. It is also near to *A. fastuosa*, Sm., but differs in the colour of

the pubescence on the face and the colour of the legs, as well as in the pale clypeus.

A. prunorum, *Jessicæ*, and *Casadæ* all show a blunt curved tooth at end of hind coxa.

- (b) Pubescence of pleura, face, and cheeks dull white; second segment of abdomen with a black band.

Andrena Casadæ, Ckll., sp. n.

♂. Length about 10 millim. Head and thorax black; clypeus pale primrose-yellow, with two black spots; abdomen red and black; pubescence dull whitish, ochraceous on front, occiput, and dorsum of thorax; build more slender than in *prunorum*.

This is in all respects closely similar to *prunorum*, but differs in being smaller, the antennæ perhaps relatively somewhat longer, the base of the antennæ not ferruginous, the pubescence of the face relatively longer, the pubescence of the face, cheeks, pleura, and metathorax greyish white instead of fulvous, the basal process of the labrum not emarginate, the tegulæ dark brown, the mesothorax duller, the middle femora not so broad, the punctuation of the abdomen finer, the second abdominal segment black at base.

The flagellum is black, not fulvous beneath as in *modesta*. The scape shows only the slightest rufous stain in front. The mandibles are wholly black, bituberculate at base. The second segment of the abdomen is not entirely ferruginous as in *fastuosa*, which must, however, be closely similar.

Hab. College Farm, Mesilla Valley, N. M., April 9, 1895, on plum (*J. E. Casad*, 164).

2. *Species with the abdomen black or dark brown.*

a. Pubescence black.

Andrena nigerrima, Casad, sp. n.

♀. "Entirely deep shiny black, with black pubescence; head about as wide as thorax and but sparsely pubescent; clypeus large, punctured, shiny, but very slightly hairy; pubescence heaviest on sides of face and around insertion of antennæ; a longitudinal raised line between antennæ; flagellum becoming slightly brownish beneath and toward tip; face between ocelli and antennæ striated; occiput and cheeks punctured; mesothorax sparsely hairy, closely punctured; scutellum and pleura with dense tufts of long pubescence; metathorax comparatively bare, with fringed margins;

legs pubescent, that on edge of anterior tarsi and apical portion of tibiæ shiny golden brown; wings dusky hyaline, clouded beyond nervures, nervures and stigma piceous; tegulæ piceous, very shiny; abdomen bare save for scattered hairs laterally and fringe on last two segments; closely and finely punctured from apical half of first segment to apex, basal half of first segment very smooth and shiny. Length about 10 millim." (*Jessie E. Casad.*)

Hab. Mesilla, N. M., April 13, 1895, on lilac (*Casad*, 195). One on the College Farm, at flowers of plum, April 9, 1895 (*Ckll.* 2619).

In its general build and the black pubescence this closely resembles *A. prima*. The first joint of the flagellum is longer than the two following together; it is not so long as this in *prima*. The metathorax is minutely granular, with shallow punctures except on the enclosure, which is not bounded by a salient rim. In *prima* the enclosure is quite different, being strongly wrinkled. The wings are not so dark as in *prima*.

b. Pubescence grey, white, or fulvous.

a. Stigma ferruginous and apex of wings dusky.

Andrena fracta, Casad & Ckll., sp. n.

♂. "Black, head as wide as thorax, densely pubescent; clypeus yellow, circular, but thinly pubescent, with a black dot on each side halfway between upper and lower edges; a heavy fringe below clypeus, across lower edge of face; pubescence below antennæ and on cheeks pale, that above antennæ and on occiput ochraceous; thorax above clothed with ochraceous hairs, those on scutellum and postscutellum densest, those on metathorax and pleura pale. Legs black, femora and coxæ with pale hairs, those on tibiæ, tarsi, and apices of femora ochraceous; wings smoky hyaline, darkest beyond marginal cell and in second and third submarginals, in places stained with yellow; abdomen closely punctured, clothed with very fine short appressed hairs, which become ochraceous on fourth segment, and are sufficiently heavy on apical margins of segments 4 and 5 to form bands; apex quite heavily fringed with ochraceous. Length about 11 millim." (*Jessie E. Casad.*)

Small examples are only about $8\frac{1}{2}$ millim. long. The antennæ are quite long, wholly black.

♀. Larger and stouter; length about 12 millim. or slightly less. Black, the pubescence rather short, pale grey; ochra-

ceous on vertex, hind part of mesothorax, scutellum, and postscutellum, and on anterior and middle tibiæ and all the tarsi. Apex of hind femora with a conspicuous tuft of reddish-fulvous pubescence. Anal fimbria orange fulvous, very conspicuous. Head broader than long, vertex depressed; clypeus wholly black, shining, with large, not particularly close punctures, medially impunctate. Antennæ wholly black, first joint of flagellum longer than the two following joints together. Sides of face with broad white bands of appressed pubescence, partly hidden by the erect hairs immediately mesad of them. Vertex sparsely punctured. Basal process of labrum rounded, not emarginate. Lower corners of clypeus somewhat produced. Mandibles wholly dark, toothed within. Mesothorax quite closely punctured, scutellum not so closely. Enclosure of metathorax wrinkled-subcancellate, not bounded by a distinct rim. Tegulæ piceous. Wings strongly yellowish except at lower outer part, which is hyaline; apex strongly smoky, the dark colour extending a little into the marginal cell. A smoky cloud also in and about second submarginal. Nervures dark brown, stigma ferruginous. Third submarginal narrowed about one half to marginal. Hind wings slightly smoky at apex. Abdomen strongly and closely punctured, segments 2 to 4 with conspicuous even bands of white pubescence, that on 2 weak in the middle.

Hab. Three males and three females, all on flowers of plum, College Farm, Mesilla Valley, N. M., April 10, 1895 (*Casad*), and March 26, 1896 (*Ckll.*).

Near to *A. nubecula*, Sm., but differs by the colour of the antennæ and tegulæ. *A. reflexa*, Cr., also seems to be allied*.

* The following species, belonging to this section but at once distinguished from *fracta* by the clypeus being yellow in the female (as in *Alicie*, Rob.), may be expected to occur in New Mexico:—

Andrena mexicanorum, Ckll., sp. n.

♀. Length about 11 millim., fairly stout, black, with a broad band across the face; tubercles (with a black dot) and spot on tegulæ pale primrose-yellow. Pubescence very sparse, greyish, with a very slight ochraceous tinge. Head subquadrate, broader than long; upper half of clypeus just enclosing the black dots, bulging downwards medially; a broad supraclypeal area, dog-ear marks, and subquadrate lateral marks pale primrose-yellow, the whole forming a broad band, the upper margin of which is straight. Face very sparsely hairy, even the cheeks with hardly any hairs. Basal process of labrum truncate. Mandibles wholly dark. Antennæ very short, wholly dark. Clypeus with very large rather sparse punctures, the upper median portion impunctate. Vertex with large tolerably close punctures. Mesothorax and scutellum smooth and

β. Stigma dark brown or black ; apex of wings dusky.

Andrena asclepiadis, Ckll., sp. n.

♂. Length 10-12 millim Rather slender, with the abdomen long and subcylindrical. Black, shining, face below level of antennæ primrose-yellow ; two black spots on clypeus ; tubercles yellow, with two black dots ; tegulæ with a yellow spot. Head rounded, somewhat broader than long ; face hardly pubescent, occiput and cheeks with pale greyish hairs ; lower margin of clypeus black, mandibles wholly black, pale supraclypeal area much more nearly square than in *mexicanorum* ; antennæ short, wholly black, first joint of flagellum not quite so long as second and third together. Clypeus with large sparse punctures, vertex strongly punctured. Thorax with the pubescence short, pale grey, and very sparse, but enclosure of metathorax pubescent. Mesothorax and scutellum smooth and shining, with large, not particularly close, punctures. Tegulæ clear testaceous, with a light yellow mark ; wings hyaline, tinged with ferruginous, outer margin, especially apically, smoky. Nervures brown ; costal nervure black, stigma very dark brown. Marginal cell truncate, appendiculate. Anterior tibiæ mostly whitish in front, middle tibiæ with a white patch at base ; tarsi ferruginous, last four joints of hind tarsi black. Outer margin of hind tibiæ strongly crenulated or subserrate. Claws deeply cleft. Abdomen strongly punctured, segments with narrow basal white hair-bands.

Hab. Santa Fé, N. M., on white *Asclepias*-flowers, Aug. 1, 1895 (*Ckll.* 4033). Also one at Albuquerque, N. M., between the town and the University, June 30, 1895 (*Ckll.* 3263). One at La Junta, Colorado, on a white-flowered *Asclepiad*, July 1895 (*Ckll.* 3648). The La Junta example is larger than that from Sta. Fé, and has the wings more

shining, with large not particularly close punctures. Enclosure of metathorax ill-defined, pubescent, quite densely at sides. Tegulæ testaceous, with a large yellow spot. Wings hyaline, quite strongly tinged with ferruginous ; apical region with a conspicuous smoky cloud. Nervures brown, costal nervure black, stigma ferruginous. Marginal cell truncate, appendiculate, second recurrent nervure slightly curved, but not as in *Colletes*. Legs black ; a yellow spot at base of four anterior tibiæ ; no tuft of hair on hind trochanters ; claws ferruginous. Abdomen strongly punctured, with narrow dull white hair-bands at bases of segments 2 to 4. Anal fimbria dull brownish.

Hab. Juarez, Mexico, Aug. 26, 1893 (*Ckll.* 493 a).

Has some superficial resemblance to *Colletes inaequalis*, Say. It is nearest to *A. asclepiadis*.

dusky, hardly at all ferruginous, the stigma black. The teeth on the hind tibiæ are better developed, about twenty in number.

Although *mexicanorum* falls in the same artificial section as *fracta*, it really has nothing to do with that insect, but is very closely related to *asclepiadis*. I was at first inclined to regard these allied forms as sexes of one species, but they come from different localities and the clear ferruginous stigma of *mexicanorum* is distinctive. Yet I suppose they are rather geographical races than distinct species, and intermediates may be looked for in the Rio Grande Valley between Juarez and Albuquerque.

These two bees are not true *Andrena*, but will fall in a new group (genus or subgenus) distinguished by the truncate marginal cell, crenate-dentate hind tibiæ of male, pubescent enclosure of metathorax, narrow elongate male abdomen, short antennæ in both sexes, and the considerable amount of yellow on face even in female. The maxillary palpi are six-jointed, the glossa pointed at tip. I have also three smaller species, which are congeneric but do not have the wings conspicuously clouded at the apex.

γ. Wings not conspicuously clouded at apex.

i. Head very large; hind margins of cheeks strongly keeled.

Andrena platyparia, Rob., race *occidentalis*, Ckll., n. race.

♂. Length about 9 millim. Differs from *platyparia* by the flagellum being wholly black, the legs very dark brown, so as to seem black except the paler tarsi, the abdomen piceous, margins of the segments narrowly testaceous. The first joint of the flagellum is not so long as the second and third together. Clypeal punctures sparse but distinct. Basal process of labrum projecting, rounded. Mandibles toothed within. Front conspicuously longitudinally striate. Vertex microscopically tessellate. Cheeks with a very strong keel behind, curving over to the apex of the orbits. Pubescence throughout dirty whitish, thin but quite long, slightly tinged with ochraceous on dorsum. Mesothorax dullish, microscopically tessellate, with shallow sparse punctures; scutellum much more shining, with only a few scattered punctures. Enclosure of metathorax ill-defined, dull and granular, with a row of short wrinkles along base. Tegulæ dark testaceous. Wings smoky hyaline, tinged brownish; nervures and stigma brown. Abdomen microscopically tessellate, with hardly

observable small scattered punctures. Thin hair-bands on segments 5 and 6.

Hab. Monument Rock, Santa Fé Cañon, N. M., Aug. 11, 1895, 8000 feet (*Arthur Boyle*).

A very peculiar insect, so nearly agreeing with the description of *A. platyparia* that I can only consider it a geographical race. *A. fragilis*, Sm., may possibly be allied, but Smith's description is very short.

ii. Head normal.

- (a) Pubescence of thorax bright fulvous; a large yellow mark on each side of face; stigma very small.

Andrena pulchella, Rob.

Two females on flowers of *Helianthus annuus* at Las Cruces, N. M., Sept. 22 and Oct. 6, 1895. The clypeus and legs are darker than in the typical form found in Illinois.

- (b) Rather small species; clypeus yellow in the ♂; abdomen with two orange bands.

Andrena aureocincta, Ckll., sp. n.

♂. Length about 9 millim. Black, with the clypeus yellow and the abdomen with orange bands. Pubescence pale ochraceous, thin, but rather long. Head broader than long; clypeus high, primrose-yellow, with two black spots, with large sparse punctures, almost impunctate in middle, its lower margin piceous, projecting. Basal process of labrum roundly emarginate. Mandibles simple, black, with the extreme tips rufous. Pubescence of face and cheeks rather long, but not dense enough to hide the surface. Front dull, minutely aciculatedly sculptured; vertex irregularly punctured, bare just laterad of the ocelli. Antennæ long, reaching as far as postscutellum, wholly black, scape hairy, first joint of flagellum not quite so long as second and third combined. Mesothorax dull, strongly and rather closely punctured. Enclosure of metathorax without a raised rim, minutely transversely wrinkled. Tegulae shining piceous. Wings smoky hyaline, the apical region slightly darker; nervures and stigma dark ferruginous brown, costal nervure black. Second submarginal cell almost exactly square. Legs black, all the tarsi orange-brown; hind tibiae orange-brown, with a suffused black blotch on each side. Hind coxæ with a curved tooth. Abdomen strongly and closely punctured, brown-black, with orange bands occupying the hind margin of first

and extreme base of second segments, and again the adjacent parts of the second and third; the hind margins of segments 3 and 4 also narrowly orange, just before the hair-bands. Continuous fulvous or ochraceous hair-bands at the apical margins of all the segments. Venter orange on second and part of third segments.

Hab. Santa Fé, N. M. (*Myrtle Boyle*). Taken in 1895, almost certainly in July or August. Not much like anything known to me.

(c) Fairly large species; clypeus dark in the ♂; pubescence grey or slightly ochreous.

† Abdomen with hair-bands, more or less developed even in the ♂; stigma dark brown.

Andrena electrica, Casad & Ckll., sp. n.

♂. Length 10 to 11 millim. Entirely black, the terminal joints of the tarsi only becoming brownish; pubescence copious and long on head and thorax, silky, greyish white, shining white on clypeus, pleura, and occiput, as also on cheeks, where it is very long and erect. Antennæ long, wholly brown-black, first joint of flagellum not nearly so long as second and third together. Head subquadrate, considerably broader than long. Mandibles wholly dark, toothed within. Basal process of labrum emarginate. Clypeus hidden by the hairs; front and vertex bare, front dull, minutely striatulate; vertex minutely roughened, with a few punctures near the top of the eyes, a small smooth space immediately laterad of the lateral ocelli. Punctures of mesothorax and scutellum rather sparse; enclosure of metathorax dull, ill-defined, with no raised margin, not wrinkled. Tegulæ brown. Wings clear hyaline; nervures and stigma brown; second submarginal cell quite broad. Abdomen moderately shining, microscopically tessellate, with very minute sparse punctures. First segment and sides of second with fairly abundant erect hairs, not concealing the surface; the remaining segments with scattered short pale hairs, looking like fine dust, dense enough on the apical margins to give the appearance of narrow, more or less interrupted, ill-defined bands. Margins of ventral segments with well-defined white hair-bands.

♀. Larger and stouter, 11 to 12 millim. long. Pubescence tinged with greyish ochreous, especially on dorsum of thorax, nowhere really white, except on hind femora and the floccus on hind trochanters. Pubescence of face shorter and more sparse, permitting the clypeus to be seen. Clypeus

minutely sculptured and with large rather close punctures; no median impunctate area. Basal process of labrum broadly triangular. Hairs fringing labrum and on lower part of clypeus dark brown, with a reddish tint. Antennæ short; first joint of flagellum as long as the two next together, tip of flagellum becoming reddish brown. Sides of face with broad pale greyish-ochreous bands of appressed pubescence. Tegulae piceous. Wings with the outer margin broadly tinged dusky. Stigma darker than in male. Abdomen with four very distinct pale grey hair-bands, all continuous. Anal fimbria dark grey-brown, with rather a chocolate or purplish tinge. The clypeus may have a narrow median impunctate line.

Hab. College Farm, Mesilla Valley, N. M., on flowers of plum, April 9, 1895 (one male, one female); April 10, 1895 (one female); March 25, 1896 (one female); March 26, 1896 (one male). Also on *Sisymbrium*, April 12, 1895 (one male), and April 16 (one female).

Miss Casad had described the two sexes as distinct species, and I should myself have treated them as such but for the circumstances of their capture. They do not differ, however, as much as the sexes of *A. vicina*, though in a different way. *A. placida*, Sm., must be a similar species, but the abdominal bands in the female are not entire. The description of *A. verecunda*, Cr., almost exactly applies, but that has the anal fimbria cinereous, whereas the dark anal fimbria is perhaps the most noticeable feature of *electrica*.

†† Abdomen without hair-bands; stigma ferruginous.

Andrena mesilla, Ckll., sp. n.

♂. Length about 11 millim. Quite stout, with the abdomen oval, convex, shining; black, the pubescence silky, greyish white, very copious on head and thorax, practically wanting on abdomen, except on first and second segments, which are delicately pruinose-pubescent, the pubescence dense enough at the sides to be rather conspicuous. Head rather large, a little broader than long. Clypeus concealed by dense white pubescence; front mostly bare, striatulate; vertex with rather sparse punctures. Cheeks swollen behind. Antennæ rather long, dark chocolate-brown; first joint of flagellum very short, no longer than second. Mandibles entirely dark. Thorax densely pubescent, the pubescence of the same colour throughout, nowhere at all ochraceous; enclosure of metathorax bare, with no raised rim, dull, minutely

transversely lineolately sculptured, basally longitudinally wrinkled. Tegulæ shining piceous. Wings hyaline, with a very faint yellowish tinge, outer margin broadly tinged smoky; nervures and stigma pale ferruginous, costal nervure black. Second submarginal cell broad, little narrowed above, receiving the first recurrent nervure at its middle. Marginal cell blunt at tip, minutely appendiculate. Legs black; femora with long but thin white pubescence; hairs of inner surface of tarsi shining rufous. Claws rufescent. Abdomen coal-black, with fairly close, very small punctures; apex with fuscous hairs.

Hab. College Farm, Mesilla Valley, N. M., on flowers of plum, March 26, 1896.

This insect at once reminds one of the male of *A. vicina*, Sm. (*hirticeps*, Sm.), but it differs in being a little larger, in the colour of the pubescence, the sculpture of the meta-thorax, &c.

(d) Small species.

It is proposed to discuss these, as also a species with a blue abdomen (*A. cerasifolii*, sp. n.), in a separate article.

The types of all the new species described will be placed in the U.S. National Museum; it is hoped to send co-types to the British Museum and Coll. Amer. Entom. Society.

Las Cruces, New Mexico, U.S.A.,
April 30, 1896.

POSTSCRIPT.

PROTANDRENA, gen. nov.

Since writing the account of the New Mexico species of *Andrena* I have become acquainted with three other species congeneric with *A. asclepiadis* and *A. mexicanorum*; and a renewed study convinces me that I have to do with a perfectly valid new genus, which I will call *Protandrena*. Mr. Fox, of Philadelphia, to whom I sent two of the species, also agrees that the genus is quite distinct from *Andrena*. In addition to the characters I have cited when describing the species, I may add the following, based on an examination of *P. maurula*:—

Tongue short and broad, gradually coming to a point, narrower at end than in *Andrena*, but not nearly so narrow as in *Halictus* (see figures given by Mr. E. Saunders, Journ.

Linn. Soc., Zool. xxiii. pls. iii., iv.). Labial palpi 4-jointed, first joint at least as long as the other three together, 3 shortest, 2 hardly longer, 4 narrow and very little longer than 2. Maxillary palpi 6-jointed; the joints subequal, 5 shortest.

The known species may be separated thus:—

A. Large species:

- (1) Stigma ferruginous *P. mexicanorum*, Ckll. (Mexico.)
 (2) Stigma dark *P. asclepiadis*, Ckll. (New Mexico,
 Colorado; also Fedor, Texas, as I
 learn from Mr. Fox.)

B. Small species:

- (1) Tarsi piceous in ♀ *P. trifoliata*, Ckll. (New Mexico.)
P. maurula, Ckll. (Texas.)
 (2) Tarsi rufous in ♀, yel-
 lowish white in ♂ *P. heteromorpha*, Ckll. (New Mexico.)

It is not worth while to give the full distinguishing characters here, as they are given in connexion with the detailed descriptions.

Mesilla, New Mexico, U.S.A.,
 June 2, 1896.

XII.—*Description of a new Species of the Leaf-footed Centipede (Alipes) from Nyasaland, together with Notes upon the previously described Species of the Genus.* By R. I. POCKOCK.

THE generic synonymy of this interesting centipede, as first pointed out, I believe, by Kohlrausch (Arch. Nat. 1881, pp. 76-77), is as follows:—

ALIPES, Imhoff, Verh. naturforschenden Ges. Basel, i. p. 120, pl. i., Sept. 4th, 1854. (Type *multicostis*, Imh.)

EUCORYBAS, Gerstaecker, Stettin. ent. Zeitsch. xv. p. 309, pl. ii. fig. 1, Oct. 1854. (Type *crotalus*, Gerst.)

The three species of the genus that have been hitherto established appear to me to be readily recognizable forms, though most authors seem willing to admit only two of them. To these three a fourth has here been added.

Alipes multicostis, Imhoff.

Alipes multicostis, Imhoff, *op. cit.* p. 120, pl. i.

This species was originally recorded from the Gold Coast, on the Gulf of Guinea, and specimens of presumably the